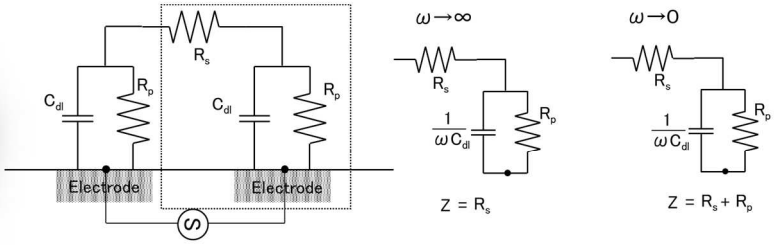
Corrosion Monitor SICM-714B/718B Specifications

【Overview】

Up to 8 channels of impedance can be monitored simultaneously by connecting an ICM sensor or a concentric circle corrosion sensor and applying high-frequency and low-frequency AC voltages.

【SICM-714B/718B Structure/Appearance】

【Circuit model of corrosion reaction 】



The corrosion reaction of a sample metal electrode of the same material that is immersed in an electrolytic solution or under a thin water film in the same area of corrosive atmosphere is shown in the circuit model of the above figure. In the above equations, Z is the impedance、Rp is the polarization resistance (∝ corrosion resistance)、C_{dl} is the electric double-layer capacitance、Rs is the solution resistance, and ω is the frequency。When $\omega \rightarrow \infty$、$Z \fallingdotseq Rs+Rp$、and when $\omega \rightarrow 0$、$Z \fallingdotseq Rs$. Since the solution resistance Rs can be approximated from the high frequency side, the polarization resistance Rp can be obtained by subtracting the high frequency side value from the low frequency side. Since the reciprocal of the polarization resistance is correlated with the corrosion rate, the change in corrosion rate over time can be captured.

【Specifications】

Impedance Measurement	Measure one point each for low frequency and high frequency with two electrodes
Potential Cancellation	With automatic potential difference function
Number of Measurement Channels	SICM-714B: Max.4 SICM-718B: Max.8
Measuring Method	AC impedance measurement with DF1
Noise Cancellation	Noise cancellation by integration of 1 to 8 cycles with shield/guard function, cable stray capacitance cancellation
Control Voltage	Choose between sine wave, 20mVp-p, or 100mVp-p
Data Acquisition and Format	10-minute intervals (can be changed), text format (can be read with spreadsheet software, etc.)
Determination of Frequency	High Frequency:10kHz Low Frequency:1m、10m、100mHz can be selected ※(consultation required)
Current Peak Measurement Range	10nA～5mA
Impedance Measurement Range	High Frequency～$10^5\Omega$、Low Frequency～$10^9\Omega$ High Frequency～1E5Ω、Low Frequency～1E9Ω
Data Format	Time, start time, interfacial capacitance, corrosion resistance, solution resistance, potential current phase

	difference, phase difference, polarization resistance (∞ corrosion resistance)、electric double layer capacitance
Data Recording Method	SD Card(FAT32、4GB)
Measurement Data Volume	More than one million pieces of data can be measured in one measurement(If Industrial SD Card is 256MB)
Power Supply	DC 12V
Dimensions	260mm(W)×180mm(D)×100mm(H)(Excluding Protrusions)
Weight	SICM-714B:1.7kg SICM-718B:App.1.9 kg

【Equipment Set Sample】

SICM-714B/718B(Main Body)

Measuring Cable

AC Adaptor

Industrial SD Card

ICM Sensor

○Accessories

Measuring Cable 1.5m(8 cables per equipment)

○Separate Purchase Required

AC Adaptor, Industrial SD Card

※It is recommended to purchase the specified products for compatibility with the equipment.

○Type of Sensor

ICM Sensor

【Affiliated Software】

●Parameter Setting Software(For Windows Xp・Windows 7)

This software is to adjust setting of parameter in PC.

〈Setting Items〉 Frequency(High Frequency , Low Frequency、Control voltage(High Frequency, Low Frequency, Measurement Interval, Using Channel,